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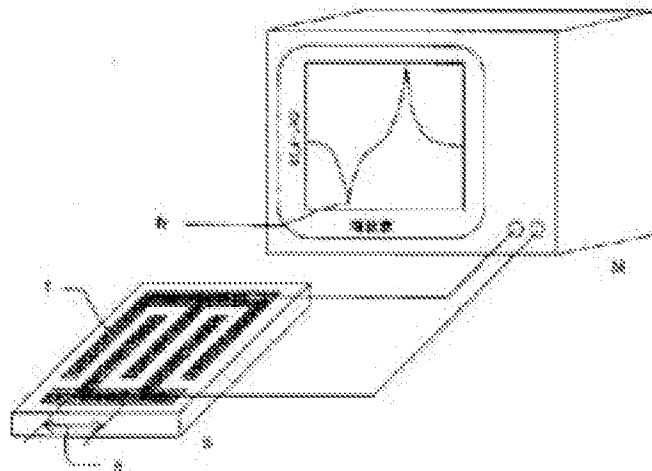
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## PATENT ABSTRACTS OF JAPAN

(11)Publication number : **2002-300001**(43)Date of publication of  
application : **11.10.2002**(51)Int.Cl. **H03H 9/25**  
**H03H 3/08**(21)Application number : **2001-099407** (71) **KYOCERA CORP**  
Applicant :(22)Date of filing : **30.03.2001** (72)Inventor : **INOUE SHINJI****(54) SUBSTRATE FOR SURFACE ACOUSTIC WAVE DEVICE, THE SURFACE ACOUSTIC WAVE DEVICE EMPLOYING IT, AND ITS MANUFACTURING METHOD****(57)Abstract:**

**PROBLEM TO BE SOLVED:** To provide a substrate for a surface acoustic wave device made of a lithium tantalate single crystal with excellent uniformity and to provide the surface acoustic wave device employing it and its manufacturing method.

**SOLUTION:** This invention provides the substrate for a surface acoustic wave device that is made of a lithium tantalate single crystal the abnormal optical refractive index of which is 2.1767-2.1795 and the double refraction value of which is 0.0004-0.0032, which are respectively measured by using a He-Ne laser at a temperature of 20-30°C.



JAPANESE

[JP,2002-300001,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL  
FIELD PRIOR ART EFFECT OF THE INVENTION  
TECHNICAL PROBLEM MEANS EXAMPLE  
DESCRIPTION OF DRAWINGS DRAWINGS

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- 3.In the drawings, any words are not translated.

## CLAIMS

[Claim(s)]

[Claim 1]A substrate for surface acoustic wave apparatus which was measured at temperature of 20-30 \*\* using helium-Ne laser and with which 2.1767-2.1795, or a double reflex value comprises a lithium tantalate single crystal of 0.0004-0.0032 in an extraordinary index.

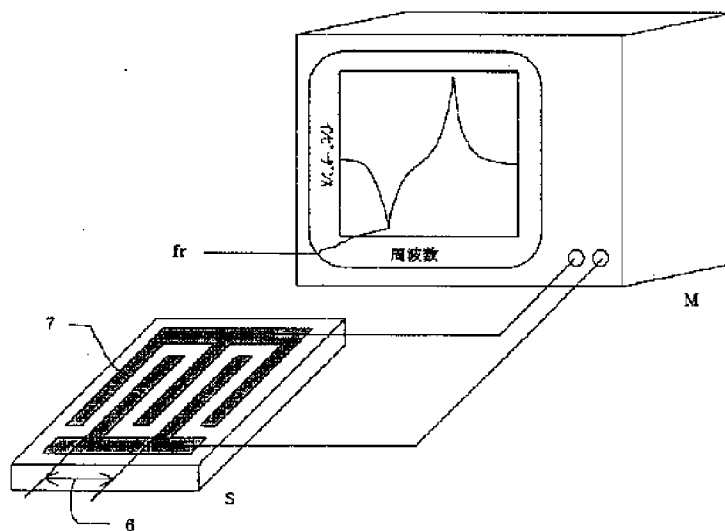
[Claim 2]The substrate for surface acoustic wave apparatus according to claim 1, wherein change of said extraordinary index or said double reflex value is \*\*0.0003.

[Claim 3]The substrate for surface acoustic wave apparatus according to claim 1 to 2, wherein principal surfaces of a substrate are 33 degrees - a 46-degree rotation Y cut face.

[Claim 4]A surface acoustic wave apparatus forming an excitation electrode of a surface acoustic wave on the substrate for surface acoustic wave apparatus according to claim 1 to 3.

[Claim 5]In temperature of 20-30 \*\* to a substrate which comprises a lithium tantalate single crystal, A process of measuring an extraordinary index or a double reflex value using helium-Ne laser, A manufacturing method of a surface acoustic wave apparatus with which said extraordinary

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